

**REMARKS/ARGUMENTS**

Applicants have received the Office action dated March 11, 2005, in which the Examiner: 1) rejected claims 22-44 under 35 U.S.C. § 112, 2<sup>nd</sup> paragraph, as being indefinite; 2) rejected claims 22-26, 28-30, 32-34 and 36-41 under 35 U.S.C. § 103(a) as being unpatentable over Bansal et al. in view of Grey et al. in further view of Hogg et al.; and 3) rejected claims 27, 31 35 and 42-44 under 35 U.S.C. § 103(a) as being unpatentable over Bansal et al in view of Grey et al. in further view of Hogg et al. and further in view of Takriti et al.

With this Response, Applicants have amended claims 22, 26, 30, 34, 39, and 42, and added new claims 45-47. These amendments are made to remove the unnecessary limitations regarding private information comprising valuations.

In the discussion below, Applicants' make reference to several documents to support Applicants' arguments. These documents are as follows: "A Theory of Auctions and Competitive Bidding," Milgrom, Paul R. & Weber, Robert J., *Econometrica*, Vol. 30, No. 5 (Sept. 1982), pp. 1089-1122, herein referred to as Milgrom; "Auctions and Bidding," R. Preston McAfee & John McMillan, *Journal of Economic Literature*, Vol. XXV (June 1987), pp. 699-738, herein referred to as McAfee; "Semiparametric Estimation of First-Price Auctions with Risk Averse Bidders," Campo, Sandra, et al., (Oct. 2000), herein referred to as Campo; and "Optimal Auctions With Risk Averse Buyers," Maskin, Eric & Riley, John, *Econometrica*, Vol. 52, No. 6 (Nov. 1984), pp. 1473-1518, herein referred to as Maskin.

**I. THE § 112, 2ND PARAGRAPH REJECTION**

Claims 22-44 stand rejected under 35 USC § 112 as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In particular, the Examiner considered the term "private information" to be "vague and indefinite as now recited in the claims as the term is relative." The Examiner stated that "[t]here is no clear meets and bounds as to what is and is not private." The Examiner also stated that "[t]he definition of private [information] as 'valuations' does not further define the term since all financial manipulations involve 'valuations.'" Applicants respectfully

traverse this rejection. The term private information has definite meaning, both as described in Applicants' patent specification and to one of ordinary skill in the art.

Private information (or alternatively, private signals or private valuations) is a term of art for "a fundamental element of an auction environment [that] is not directly observable and has to be estimated from observable and available data." (Applicants' specification, para 0037; see also, Milgrom, p. 1090, McAfee, pp. 704-707, Campo, Abstract.) "The private information specifies any information held privately by a bidder or potential bidder (i.e., information not possessed by other bidders or seller [sic])." (Applicants' specification, para 0036.) The private information is an indicator of bidders' willingness to pay for an item, *i.e.*, bidders' privately held valuations of the item. (See Applicants' specification, para 0037, para 0053, para 0059; see also, Milgrom, p. 1090, McAfee, pp. 704-707, Campo, p. 5.) This private information may be represented by a distribution function. (See Applicants' Specification, para 0053; see also Milgrom, McAfee, and Campo.) In view of the foregoing, Applicants submit that claims 22-44 satisfy the requirements of 35 USC § 112, and are accordingly not indefinite.

## **II. THE § 103(A) REJECTIONS**

Claims 22-26, 28-30, 32-34 and 36-41 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Bansal et al. in view of Grey et al. in further view of Hogg et al. Claims 27, 31, 35, and 42-44 stand rejected under 35 U.S.C. § 103(a) as being unpatentable under 35 U.S.C. § 103(a) as being unpatentable over Bansal et al in view of Grey et al. in further view of Hogg et al. and further in view of Takriti et al. Applicants traverse these rejections.

### **A. Secondary Considerations**

In various forms, the claims require the determination of private information and risk attitudes from bids in auctions. The Manual of Patent Examining Procedures (MPEP) § 2141 requires examiners to consider secondary considerations of non-obviousness (*e.g.*, teaching away) when determining patentability under 35 U.S.C. § 103(a). Campo documents an analysis as to whether the structural elements of an auction, *i.e.*, private

information and risk attitudes, may be uniquely recovered from observed bids. The conclusion of Campo is that observed bids do not contain enough information to determine these unknown elements. (See Campo, pages 2, 5-7.) Campo thus teaches away from determining private information and risk attitudes from auction bids. For this reason alone, claims 22-44 should be allowed over the prior art.

**B. Claim 22**

Claim 22 requires, among other limitations, "determining private information using the bids submitted in the utility-independent auctions; and determining risk attitudes using the private information and the bids submitted in the utility-dependent auctions." Applicants submit that the art of record does not teach or even suggest the above-cited combination of limitations.

The Examiner asserts that Bansal teaches that auction data from previously conducted auctions is analyzed and risk attitudes for bidders are determined. As is described in Applicants' specification and as is well-known by one of ordinary skill in the art, the term risk attitude (or, alternatively, risk aversion) refers to an unknown or unobservable element of the market structure of an auction that represents the attitude of bidders toward risk. (See Applicants' Specification, para 0038; see also, e.g., Maskin, Campo, and MacAfee.) "Risk attitude is represented by a utility of wealth function,  $U(w)$ . If a bidder with a private valuation,  $v_i$ , and current wealth,  $w$ , wins the item at a price,  $b$ , his utility of winning the auction is  $U(w + v_i - b)$  and his utility of not winning is  $U(w)$ . A concave function  $U()$  indicates risk aversion, whereas a linear utility of wealth function characterizes risk neutrality." (Applicants' specification, para 0056.)

Bansal does not teach or suggest determining risk attitudes as required by claim 22. At most, Bansal appears to teach a market intermediary that receives a position from a buyer or a seller, obtains information on risk classes for the buyer and/or seller relevant to the new position, and computes risk premia charges that correspond to the obtained risk classes. See paragraph 0149. Furthermore, Grey and Hogg, alone or in combination, do not teach this requirement. For at

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least this reason, claim 22 is patentable over Bansal, Grey and Hogg. Claims 23-25 depend on or from claim 22 and are allowable for at least the same reason as claim 22.

The Examiner admits that Bansal does not disclose the following: "performing analysis of auction data, the analysis comprising accumulating the auction data into sets as a function of auction type, the type defined as being utility dependent (i.e., English) and utility-independent (i.e., Dutch); conducting further auctions to determine sufficient private information to determine risk from utility dependant auctions; determining private information for the bidders submitted in a utility-independent auction; [and] a table indicating joint distribution of the private information." Applicants thank the Examiner for these admissions but fail to see the relevance of the first, second, and fourth admissions as these limitations are not included in the claims that are the subject of this Office action. Clarification is requested.

The Examiner also asserts that Grey, et al. discloses in paragraph 0053 "performing analysis of auction data, the analysis comprising accumulating the auction data as a function of auction type, the type defined as being utility dependent and utility-independent." Applicants fail to see the relevance of the Examiner's assertion as the limitations that the Examiner attributes to Grey are not included in the claims that are the subject of this Office action. If the Examiner continues to assert that Grey discloses some limitations of the invention of claim 22, Applicants request that the Examiner provide a clearer explanation of which limitations these are and where in Grey such limitations are disclosed.

Furthermore, the Examiner has erred in combining Bansal, Grey, and Hogg to reject claim 22. "Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the combination. Under section 103, teachings of references can be combined only if there is some suggestion or incentive to do so." (*In re Fritch*, 972 F.2d 1260, 1266 (Fed.Cir. 1992) (emphasis original)). The MPEP goes on to say, "The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art

also suggests the desirability of the combination." (MPEP 2143.01 (emphasis original)). Applicants submit the Examiner has failed to establish sufficient motivation to combine the alleged teachings of Bansal, Grey, and Hogg. Regarding Grey, the Examiner stated:

It would have been obvious to one with ordinary skill in the art to include performing analysis of auction data, the analysis comprising accumulating the auction data as a function of auction type, the type defined as being utility-dependent and utility-independent **because Grey et al teaches the importance of auction parameter analysis in the conduct of an auction (para 0008).**

Office action, page 4 (emphasis added). The Examiner's stated reason appears to have nothing at all to do with the subject matter of claim 22 or of Bansal or Hogg. The Examiner has not established a reason why one of ordinary skill in the art would have been motivated to combine Grey, et al. with Bansal and Hogg.

Regarding Hogg, the Examiner stated:

It would have been obvious to one with ordinary skill in the art to include determining private information for the bidders submitted in a utility-independent auction **because Hogg et al teaches that important information may be gathered from such information in any auction (para 0005).**

Office action, page 4 (emphasis added). This alleged motivation to combine is suspect for two reasons. First, the Examiner has overly generalized the cited paragraph of Hogg. This paragraph merely teaches that latent demand for a commodity may be determined by analyzing unaccepted offers for each of a plurality of commodities and then selecting one of these commodities to offer for sale that fulfills at least one criterion from the analysis. Second, even if the Examiner's suggested motivation is accepted at face value, Applicants fail to understand how such broad, general alleged teaching would motivate one of ordinary skill in the art to combine Hogg with Bansal and Grey. Given the Examiner's failure to establish sufficient motivation to combine the references, the Examiner has improperly used the claimed invention "as a 'template' to piece together the teachings of the prior art." (In re Fritch, 972 F.2d at 1266). For this

reason alone claim 22 should be allowed. Claims 23-25 depend on or from claim 22 and are allowable for at least the same reason as claim 22.

**C. Claims 26, 30, 34, 39**

The Examiner rejected claims 26, 30, 34, and 39 for the same reasons as cited for claim 22. For at least the same reasons as cited for claim 22, claims 26, 30, 34, and 39 and their respective dependent claims 27-29, 31-33, 35-38, and 40-41 are patentable over Bansal, Grey, and Hogg.

**D. Claims 23, 24, 25, 28, 29, 32, 33, 36, 37, 38, 40, 41**

The Examiner rejected claims 23, 24, 25, 28, 29, 32, 33, 36, 37, 38, 40, and 41 as alleged being obvious over the combination of Bansal, Grey, and Hogg. However, the Examiner failed to provide any specific rationale for rejecting the limitations cited in these claims based on the teachings of these patents. Without knowing which specific reference is being used against which specific limitation of these claims, it is difficult for Applicants to respond to these rejections. Clarification is requested. However, Applicants submit that Bansal, Grey, and Hogg, alone or in combination, do not teach or suggest the limitations cited in these claims. For at least this reason, these claims are patentable over the combination of Bansal, Grey, and Hogg.

**E. Claim 42**

Claim 42, as amended, recites in part “determining a joint distribution function that represents private information of a first plurality of bidders using the utility-independent auction data; and determining a utility of wealth function of a second plurality of bidders using the joint distribution function and the utility-dependent auction data.” Applicants fail to understand the Examiner’s rationale for rejecting this claim over the combination of Bansal, Grey, Hogg, and Takriti, especially since the Examiner provided very little basis for this rejection. If the Examiner continues to assert this rejection, Applicants request that the Examiner provide more explanation as to where in the cited art the Examiner believes the limitations of this claim are taught. Furthermore, Bansal, Grey, Hogg, and Takriti, either alone or in combination, do not teach or suggest “determining a joint distribution function that represents private information of a first plurality of

bidders using the utility-independent auction data" or "determining a utility of wealth function of a second plurality of bidders using the joint distribution function and the utility-dependent auction data." For at least these reasons, claim 42, and its dependent claims 43-44 are patentable over the combination of Bansal, Grey, Hogg, and Takriti.

**III. THE NEW CLAIMS**

Applicants have added new claims 45-47. Claim 45 depends from claim 22 and is patentable over the cited art for at least the same reasons as claim 22. Claim 46 depends from claim 26 and is patentable over the cited art for at least the same reasons as claim 26. Claim 47 depends from claim 30 and is patentable over the cited art for at least the same reasons as claim 30.

**IV. CONCLUSION**

In the course of the foregoing discussions, Applicants may have at times referred to claim limitations in shorthand fashion, or may have focused on a particular claim element. This discussion should not be interpreted to mean that the other limitations can be ignored or dismissed. The claims must be viewed as a whole, and each limitation of the claims must be considered when determining the patentability of the claims. Moreover, it should be understood that there may be other distinctions between the claims and the cited art which have yet to be raised, but which may be raised in the future.

Applicants respectfully request reconsideration and that a timely Notice of Allowance be issued in this case. It is believed that no extensions of time or fees are required, beyond those that may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are

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hereby petitioned under 37 C.F.R. § 1.136(a), and any fees required (including fees for net addition of claims) are hereby authorized to be charged to Hewlett-Packard Development Company's Deposit Account No. 08-2025.

Respectfully submitted,



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